

IN THE CLAIMS:

This listing of claims replaces all prior listing of claims.

1. (Previously Presented) A method of identifying at least one unknown energy driver, the method comprising:

- receiving quantity metadata and energy usage data;

- receiving a time interval;

- determining at least one relationship between the quantity metadata and energy usage data by analyzing the quantity metadata and energy usage data within the time interval;

- assessing the quality of the at least one relationship to determine the quantity metadata contributing to the determined at least one relationship;

- identifying the at least one energy driver from the quantity metadata contributing to the determined at least one relationship by comparing the quantity metadata contributing to the determined at least one relationship with a predetermined list of potential energy drivers, wherein the at least one energy driver is a cause of energy consumption reflected by the energy usage data;

- outputting the identified at least one energy driver, wherein the outputted at least one energy driver is a variable that influences the energy consumption as reflected in the energy usage data;

- calculating a cost from the identified at least one energy driver; and

- controlling the identified at least one energy driver to reduce the cost of energy usage from the identified at least one energy driver.

2. (Previously Presented) The method of claim 1, wherein the predetermined list of potential energy drivers includes known variables effecting energy usage.
3. (Original) The method of claim 1, wherein the quantity metadata relates to production levels.

4. (Original) The method of claim 1, wherein the quantity metadata relates to production schedules.
5. (Original) The method of claim 1, wherein the quantity metadata relates to process variables.
6. (Original) The method of claim 1, wherein the determining comprises a linear regression analysis.
7. (Original) The method of claim 1, wherein the determining comprises a multivariate regression analysis.
8. (Original) The method of claim 1, wherein the determining comprises using at least one of algebraic formulae, fuzzy logic, genetic algorithms, fuzzy cognitive maps, and an expert system.
9. (Original) The method of claim 1, wherein the determining comprises searching only quantity metadata and energy usage data that are not ratiometrically linked.
10. (Original) The method of claim 1, wherein the outputting comprises outputting at least one of a relationship graph and a plain language description of the energy driver.
11. (Currently Amended) A system for identifying unknown energy drivers in an energy distribution network, the system comprising:
  - an energy drivers application, the energy drivers application having:
  - an input module operative to receive quantity metadata, predetermined energy driver quantities, energy usage data, and a time interval;

a processing module coupled with the input module and operative to determine at least one relationship by analyzing the quantity metadata and energy usage data during the time interval, the processing module being further operable to assess the quality of the at least one relationship to determine the quantity metadata contributing to the determined at least one relationship and identify the at least one energy driver based on the quantity metadata contributing to the determined at least one relationship and based on a comparison with a list of predetermined energy driver quantities, wherein the at least one energy driver is a cause of energy consumption as reflected in the energy usage data; and

an output module coupled with the processing module and operative to output the identified at least one energy driver; and

a rate engine coupled with the output module and operative to calculate a cost of energy usage based on the identified at least one energy driver and further operative to reduce the cost of energy usage.

12. (Original) The system of claim 11, further comprising a network coupled with the input module, and operative to transmit said quantity metadata and energy usage data to said input module.
13. (Previously Presented) The system of claim 12, further comprising at least one IED coupled with said network and operative to generate and transmit said energy usage data to said input module of said energy drivers application via said network.
14. (Original) The system of claim 12, further comprising at least one measuring device coupled with said network and operative to generate and transmit said quantity metadata to said network.

15. (Previously Presented) The system of claim 11, wherein the processing module is configured to manage energy usage by monitoring the identified at least one energy driver.
16. (Original) The system of claim 11, wherein the quantity metadata relates to production levels.
17. (Original) The system of claim 11, wherein the quantity metadata relates to production schedules.
18. (Original) The system of claim 11, wherein the quantity metadata relates to process variables.
19. (Original) The system of claim 11, wherein the processing module is further operative to determine the at least one relationship by analyzing the quantity metadata and energy usage data using a linear regression analysis.
20. (Original) The system of claim 11, wherein the processing module is further operative to determine the at least one relationship by analyzing the quantity metadata and energy usage data using a multivariate regression analysis.
21. (Original) The system of claim 11, wherein the processing module is further operative to determine the at least one relationship by analyzing the quantity metadata and energy usage data using at least one of algebraic formulae, fuzzy logic, genetic algorithms, fuzzy cognitive maps, and an expert system.

22. (Original) The system of claim 11, wherein the processing module is further operative to determine the at least one relationship by searching only quantity metadata and energy usage data that are not ratiometrically linked.
23. (Previously Presented) The system of claim 11, wherein the output module is further operative to output at least one of a relationship graph and a plain language description of the energy driver.
24. (Currently Amended) A system for identifying unknown energy drivers in an energy distribution network, comprising:  
means for accepting quantity metadata and energy usage data;  
means for determining at least one relationship by analyzing the quantity metadata and energy usage data associated with consumed energy within a predetermined time interval;  
means for assessing the quality of the at least one relationship to determine the quantity metadata contributing to the determined at least one relationship;  
means for identifying at least one energy driver from a predetermined list of potential energy drivers based on the quantity metadata contributing to the determined at least one relationship, wherein the at least one energy driver is a cause of an amount of consumed energy that is reflected in the energy usage data;  
means for outputting the identified at least one energy driver;  
means for calculating a cost associated with operation of the at least one energy driver;  
and  
means for controlling the identified at least one energy driver based on the cost of energy usage from the identified at least one energy driver.
25. (Previously Presented) An energy drivers application implemented on a computer, the computer having a processor and a memory coupled with the processor, the energy drivers application comprising:

first logic stored in the memory and executable by the processor and operable to accept quantity metadata, a list of potential energy drivers, and energy usage data;

second logic stored in the memory, executable by the processor and coupled with the first logic, and operable to determine at least one relationship by analyzing the quantity metadata, energy usage data and comparing with the list of potential energy drivers, the second logic being further operable to assess the quality of the at least one relationship to determine the quantity metadata contributing to the determined at least one relationship and further identify the at least one energy driver from the quantity metadata contributing to the determined at least one relationship, wherein the at least one energy driver comprises a variable that is a cause of the energy usage data, the second logic further operative to calculate a cost from the identified at least one energy driver;

third logic stored in the memory, executable by the processor and coupled with the second logic, and operable to output the at least one energy driver and the cost from the identified at least one energy driver; and

fourth logic stored in the memory, executable by the processor and coupled with the third logic, and operable to monitor the at least one energy driver for management of energy usage and further operable to control the identified at least one energy driver based on the cost of the at least one energy driver.

26. (Currently Amended) An energy drivers application for use in an energy distribution network, comprising:

an input module operative to accept quantity metadata, a list of potential energy drivers, and energy usage data;

a processing module coupled with the input module and operative to determine at least one relationship by analyzing the quantity metadata and energy usage data within a chosen time period, the processing module being further operable to assess the quality of the at least one relationship through statistical analysis and identify at least one energy driver from the list of potential energy drivers based on ~~from~~ the quantity metadata contributing to the determined at

least one relationship, wherein the at least one energy driver comprises an external factor that is a cause of energy consumption as reflected in the energy usage data;

an output module coupled with the processing module and operative to output the identified at least one energy driver and a cost associated with the identified at least one energy driver; and

a control module coupled with the processing module and operative to control the identified at least one energy driver to reduce the cost of energy usage.